

GE/Nomadics In-Well Monitoring System

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Abstract

In this two-year program starting October 2001, General Electric Corporate Research and Development (GE CRD) and Nomadics, Inc. will develop and validate an automated in-well monitoring system (AIMS) to characterize dissolved- and vapor-phase DNAPL (dense non-aqueous phase liquid), such as trichloroethylene (TCE), in the groundwater and vadose zones at selected DOE sites. The monitoring system takes advantage of low-cost chemical sensor array technology developed by researchers at GE CRD for long-term monitoring of environmental contaminants in groundwater wells [1, 2]. Nomadics will partner with GE to provide scale-up engineering design support, prototyping, and commercialization of the in-well monitoring system technology.

The project has several objectives:

- Adapt GE's sensor array technology to meet DOE needs
- Integrate the sensor probe into an in-well monitoring system
- Demonstrate system capabilities during a pilot field test at a selected DOE site
- Perform a full-scale demonstration of the technology
- Develop a commercialization plan for the AIMS technology

At the end of the project, AIMS will meet the needs of the DOE and other end-users. AIMS will provide enhanced capabilities for *in situ* detection and long term monitoring of dissolved- and vapor-phase DNAPL. Other benefits of this technology include reduced operator risk, reduced secondary waste, lower cost, decreased analysis times, and greater ease of use – compared to baseline and alternative technologies.

1. Potyrailo, R. A.; May, R. J.; Sivavec, T. M., Recognition and quantitation of closely related chlorinated organic vapors with acoustic wave chemical sensor arrays, Proc. SPIE-Int. Soc. Opt. Eng., 3856 (Internal Standardization and Calibration Architectures for Chemical Sensors) (1999).
2. Potyrailo, R.A.; Sivavec, T.M.; and Bracco, A.A.; Field evaluation of acoustic wave chemical sensors for monitoring of organic solvents, Proc. SPIE-Int. Soc. Opt. Eng., 3856 (Internal Standardization and Calibration Architectures for Chemical Sensors) (1999).